Chapter 23.10

ELECTRICAL CODE

Sections:

23.10.320 **Section 210.8(B) Amended; Ground Fault Protection for Personnel, Receptacles Other Than Dwelling Units.**

23.10.323 **Section 210.11(c)(3) Amended; Bathroom Circuits.**

23.10.324 **Section 210.12 Deleted; Arc Fault Circuit Interrupters.**

23.10.327 **Section 210.52(c)(2) Amended; Island Counter Space Receptacle Requirements.**

23.10.329 **Section 210.52(c)(3) Amended; Dwelling Unit Peninsular Counter Space Receptacle Requirements.**

23.10.330 **Section 210.63 Amended; Heating, Air-Conditioning, and Refrigeration Equipment Outlet.**

23.10.331 **Section 210.70 Amended; Lighting Outlets Required.**

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23.10.335 **Section 230.43 Amended; Wiring Methods for 600 Volts Nominal, or Less.**

23.10.337 **Section 230.46 Amended; Splicing Service Entrance Conductors.**

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23.10.350 **Section 250.24 Amended; Grounding Service-Supplied Alternating-Current Systems; System Grounding Connections.**

23.10.351 **Section 250.50 Amended; Grounding Electrode System.**

23.10.353 **Section 250.52 Amended; Made and Other Electrodes**

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23.10.385 **Section 314.16(B)4 Amended; Box Fill.**

23.10.390 **Section 334.12 Amended; Nonmetallic Sheathed Cable, Uses Not Permitted.**

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23.10.400 **Section 410.2 Amended; Lighting Fixtures; Application of Other Articles.**

23.10.402 **Section 410.4(d) Amended; Lighting Fixtures Above Bathtubs and Shower Areas.**

23.10.410 **Section 422.16(b) Amended; Specific Appliances.**

23.10.417 **Section 430.102 Amended; Location of Motor Disconnects.**

23.10.420 **Article 460 Amended; Rating of Capacitors.**

23.10.425 **Section 500.7(K) Deleted; Combustible Gas Detection Systems.**

23.10.430 **Section 501.17 Amended; Lightning and Surge Protection for Class I, Divisions 1 and 2 Locations (or Zone 0, 1, or 2).**

23.10.010 Adoption of the National Electrical Code, 2002 Edition.

Except as hereinafter provided by specific changes, the National Electrical Code (2002 edition), hereinafter the National Electrical Code, sponsored by the National Fire Protection Association under the auspices of the American National Standards Institute is hereby adopted. Three printed copies of this document have been filed in the office of the Director of Building and Safety of the City of Lincoln for the use of and examination by the public. The City Clerk shall maintain one printed copy of this document, in book form, with the official records of the city. (Ord. 18012 §1; June 7, 2002: prior Ord. 17521 § 1; July 6, 1999: Ord. 17049 §1; August 19, 1996; Ord. 16384 §1; June 14, 1993: Ord. 15580 §1; June 4, 1990: Ord. 14837 §21; February 29, 1988: Ord. 14228 §1; September 30, 1985).

23.10.020 Citation of Code.

This ordinance shall be known as the "Lincoln Electrical Code," and may be cited as such and will be referred to herein as "this code." The word "shall" as used in this ordinance indicates a mandatory rule. (Ord. 14228 §2; September 30, 1985).

23.10.030 Administration.

The Director of Building and Safety, hereinafter designated as "Building Official," or an authorized representative of the Building Official, is hereby authorized and directed to enforce the provisions of this code. (Ord. 15580 §2; June 4, 1990: prior Ord. 14837 §22; February 29, 1988: Ord. 14228 §3; September 30, 1985).

23.10.040 Defective or Improperly Operating Electrical Equipment; Notice to Owner; Discontinuance of Electrical Service.

(a) The Building Official shall examine or cause to be examined any electrical equipment within or on any building or premises reported to be defective or in improper operating condition. If such equipment is found to be defective or in improper operating condition so as to constitute a danger to persons or property, the Building Official shall give to the owner of such building or premises written notice stating the deficiencies found to exist. This notice may require the owner or person having charge or control of such building or premises, within forty-eight hours, to commence work to correct such deficiencies, and all such work shall be completed within ten days from the date of notice, unless otherwise stipulated by the Building Official.

NOTE: As used in this article, "constitute a danger to persons or property" shall mean: In the opinion of the Building Official or an authorized representative of the Building Official, there are code violations or wiring deficiencies which comprise a fire hazard or shock hazard.

(b) Proper service of such notice shall be by personal service upon the owner of record or by certified mail, postage prepaid, return receipt requested to said owner's last known address. The designated period within which said owner or persons having charge or control is required to comply with the order of the Building Official shall begin as of the date said owner receives such notice. In cases where the owner cannot be reached or refuses to reply after the provisions of part (b) have been implemented, the provisions of part (c) shall take precedence.

(c) The Building Official or an authorized representative are hereby vested with the authority to order the discontinuance of electrical service to any building or premises where such deficiencies in electrical equipment have not been corrected within the time specified by such notice. In the case of emergency, the Building Official or an authorized representative are hereby vested with the authority to immediately order the discontinuance of electrical service to any building or premises where the same is necessary for the protection of persons or property. Existing installations shall not be deemed a deficiency, provided the wiring when originally completed was installed in accordance with the provisions of the electrical code then in force and has been maintained in that condition. (Ord. 15580 §3; June 4, 1990: prior Ord. 14228 §4; September 30, 1985).

23.10.050 Right of Entry.

(a) Whenever necessary to make an inspection to enforce any of the provisions of or perform any duty imposed by this code, or whenever the Building Official or an authorized representative of the Building Official has reasonable cause to believe there exists within or on any building or premises any equipment, as defined in this code, which makes such building or premises dangerous, hazardous, or unsafe for any reason specified in this code, or that work is being done or has been done in violation of this code, including work being done without a permit or work being done by an unlicenced person or persons, then the Building Official or an authorized representative are hereby authorized to enter within or on such building or premises at any reasonable time to inspect the same and perform any duty imposed upon the Building Official by this code; provided, that (1) if such building or premises be occupied, the Building Official or an authorized representative shall first present proper credentials to the occupant and request entry, explaining their reasons therefor, and (2) if such building or premises be unoccupied, the Building Official or an authorized representative shall first make a reasonable effort to locate the owner or other person having charge or control of such building or premises and request entry, explaining their reasons

therefor. If such entry is refused or cannot be obtained because the owner or other person having charge or control of such building or premises cannot be found after due diligence, the Building Official or an authorized representative of the Building Official shall have recourse to every remedy provided by law to secure lawful entry and inspect such building or premises.

(b) "Authorized representative" shall mean Department of Building and Safety personnel possessing the requisite knowledge and master electrician's license to perform the duties and discharge the responsibilities of an electrical inspector. (Ord. 15580 §4; June 4, 1990: prior Ord. 14228 §5; September 30, 1985).

23.10.060 Building Official and Authorized Representative Relieved From Personal Liability.

The Building Official or an authorized representative charged with enforcement of this code, when acting in good faith and without malice, are hereby relieved from all personal liability for any damage that may accrue to any person or property as a result of any act required by this code, or by reason of any act or omission of the Building Official or an authorized representative in the discharge of their duties hereunder. Any suit brought against the Building Official or an authorized representative, because of any such act or omission in the enforcement of this code, shall be defended by the City Law Department until final determination of such proceedings. (Ord. 15580 §5; June 4, 1990: prior Ord. 14228 §6; September 30, 1985).

23.10.070 Bypassing Meters.

(a) Any person, firm, or corporation who by-passes the electric meter shall be deemed in violation of this code. Proper metering and overcurrent protection shall be installed immediately or the service entrance conductors shall be disconnected.

(b) It shall be deemed a violation of this code for any person, firm, or corporation to tap any metered conductor of another for the purpose of theft of power.

(c) It shall be unlawful for any seller of electric current to continue to sell electric current to any person, firm, or corporation described in subsection (a) above, unless the required service equipment and meter are installed as provided therein. (Ord. 16384 §2; June 14, 1993: prior Ord. 14228 §7; September 30, 1985).

23.10.080 Severability.

If any section, subsection, paragraph, sentence, clause, phrase, or provision of this ordinance shall be adjudged invalid, or held unconstitutional, the same shall not affect the validity of this ordinance as a whole or any part or provision thereof, other than the part so declared to be invalid or unconstitutional. (Ord. 14228 §8; September 30, 1985).

23.10.090 Penalty.

(a) It shall be unlawful for any person, firm, or corporation upon whom a duty is placed by the provisions of this code to fail or to neglect to comply with the provisions of this code.

(b) Any person, upon whom a duty is placed by the provisions of this code who shall fail, neglect or refuse to perform such duty or who shall violate any of the provisions of this code shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by imprisonment in the county jail for a period not to exceed six months, or by a fine of not to exceed $500.00 recoverable with costs, or both,

except that each person so convicted shall be fined in a sum of not less than $200.00 for the first offense, not less than $250.00 for the second offense, and not less than $300.00 for the third offense and each offense thereafter. Each day a violation of any provision of this code continues to exist shall constitute a separate offense. (Ord. 16384 §3; June 14, 1993: prior Ord. 14228 §9; September 30, 1985).

23.10.100 Electrical Advisory, Appeals, and Examining Board; Creation.

There is hereby created an Electrical Advisory, Appeals, and Examining Board which shall consist of six members and shall be referred to herein as the Electrical Board.

Membership on the Electrical Board shall consist of the following:

(a) The Building Official, ex officio;

(b) The Chief Electrical Inspector for the City of Lincoln;

(c) A registered professional engineer who has passed the State of Nebraska engineer's examination and is a representative from industry or business;

(d) A registered professional engineer who has passed the State of Nebraska engineer's examination and is a representative from the Lincoln Electric System;

(e) One registered master electrician residing in the City of Lincoln;

(f) One registered master electrician residing in the City of Lincoln and actively engaged in the electrical contracting business.

The registered professional engineers and the registered master electricians shall be appointed by the Mayor with the concurrence of the City Council for staggered terms of three years each. Vacancies on the board shall be filled by appointment for the unexpired term only. The Chief Electrical Inspector shall be a permanent secretary of the board and shall keep a record of all meetings. (Ord. 15580 §6; June 4, 1990: prior Ord. 14228 §10; September 30, 1985).

23.10.110 Electrical Board; Authority and Duties.

The Electrical Board shall:

(a) Advise the Mayor regarding the determination of the suitability of alternate materials and methods of installation, and the reasonable interpretations of the provisions of this code. The board shall make recommendations to the Mayor at the Mayor's request. The board shall adopt reasonable rules and regulations for conducting its investigations and shall render all recommendations in writing to the Mayor.

(b) Have power and authority to adopt necessary rules and regulations consistent with the provisions of this code for the examination of applicants for registration and suspension or revocation of registration as provided in this code. Any such rules and regulations or amendments thereto shall be approved by the Mayor. The Electrical Board shall determine the minimum qualifications for applicants for registration based upon a point system as part of the rules and regulations and shall determine the nature of the examination to be given applicants for registration.

(c) Have power and authority to hear and determine appeals by any person who is aggrieved by a decision, notice, or order of the Building Official under this code.

(d) Hold an annual meeting on the third Wednesday in February of each year, at which meeting a chairperson shall be elected for the ensuing year.

(e) Hold meetings as required to grade examinations on the third Wednesday in February, May, August, and November of each year.

(f) Hold special meetings upon the call of the chairperson, the Chief Electrical Inspector, or upon a written request signed by two of its members and filed with the secretary. (Ord. 15580 §7; June 4, 1990: prior Ord. 14228 §11; September 30, 1985).

23.10.120 Appeals From Decision, Notice, or Order of Building Official.

(a) Any person who is aggrieved by a decision, notice, or order of the Building Official under this code may appeal such decision to the Electrical Board by filing such appeal within thirty days from the date of such decision. Upon request, the Building Official shall furnish such aggrieved person with an appeal form, which, upon completion and filing within the prescribed time and payment of the prescribed fee, shall be sufficient for the purpose of commencing an appeal proceeding hereunder.

(1) A $20.00 fee for review of a decision of the Building Official interpreting a provision or provisions of this code;

(2) A $40.00 fee for review of a decision of the Building Official concerning the suitability of alternate materials or types of installation.

(b) The Building Official shall refer all properly and timely filed appeals to the Electrical Board for hearing. The secretary of said board shall in each appeal notify the appellant in writing of the date, time, and place of hearing before the board, which date shall be no later than thirty days from the filing of the appeal. Such notice shall be served upon the appellant by personal service or registered mail.

(c) Hearings on appeal need not be conducted according to technical rules relating to evidence and witnesses. Oral evidence shall be taken only on oath or affirmation. Any relevant evidence shall be admitted if it is the type of evidence upon which responsible persons are accustomed to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which may make improper the admission of such evidence over objection in civil actions in courts of competent jurisdiction in this state. Irrelevant and unduly repetitious evidence shall be excluded. The appellant, the board members, the Building Official, and any other party to an appeal hereunder shall have these rights, among others:

(1) To call and examine witnesses on any matter relevant to the issues of the hearing:

(2) To introduce documentary and physical evidence;

(3) To cross-examine opposing witnesses on any matter relevant to the issues of the hearing; and

(4) To rebut evidence.

(d) The Electrical Board shall then within a reasonable time after the hearing render a written decision which shall state its findings and conclusions. Decisions of the Electrical Board may be appealed as provided by law.

(e) Enforcement of any decision, notice, or order of the Building Official issued under this code shall be stayed during the pendency of an appeal therefrom which is properly and timely filed, except in cases of emergency, where enforcement of the same is necessary for the protection of persons or property. (Ord. 15580 §8; June 4, 1990: prior Ord. 14228 §12; September 30, 1985).

23.10.130 Scope.

(a) The provisions of this code shall apply within the corporate limits of the City of Lincoln and within three miles thereof according to the following classes:

(1) All electric conductors and equipment installed within or on public and private buildings, structures, and other premises including yards, carnival and parking lots, and industrial substations.

(2) All conductors that connect electrical installations to a supply of electricity, and other outside conductors adjacent to a premises.

(3) All modular manufactured (mobile) homes and travel trailers.

EXCEPTION: The installation during original construction.

(4) All privately owned street or parking lot lighting.

(5) Alternate energy sources.

(6) Fire alarm and emergency systems regardless of operating voltage.

(7) Floating buildings.

(b) The provisions of this code shall not apply to the following:

(1) Installations in ships, watercraft, railway rolling stock, aircraft, or automotive vehicles.

(2) Installations underground in mines.

(3) Installations of railways for generation, transformation, transmission, or distribution of power used exclusively for operation of rolling stock or installations used exclusively for signaling and communication purposes.

(4) Installations of communication equipment under exclusive control of communication utilities, located outdoors or in building spaces used exclusively for such installations.

EXCEPTION: The requirements of NEC Article 300.22 shall apply to such wiring.

(5) Installations under the exclusive control of electric utilities for the purpose of communication, or metering, or for the generation, control, transformation, transmission, and distribution of electric energy located in buildings used exclusively by utilities for such purposes or located outdoors on property owned or leased by the utility, or on public highways, streets, roads, or other public ways, or outdoors by established rights on private or public property.

(6) Electrical apparatus used for radio transmission in amateur transmitting stations; however, the provisions of this code shall apply to all electrical equipment used for power supply to such radio transmitting apparatus. (Ord. 17049 §2; August 19, 1996: prior Ord. 16384 §4; June 14, 1993: Ord. 15580 §9; June 4, 1990: Ord. 14228 §13; September 30, 1985).

23.10.140 Permits Required.

(a) No person, firm, or corporation other than a registered master electrician, journeyman, or apprentice of an electrical contracting company, registered maintenance electricians, or homeowners under certain conditions set forth in Section 23.10.160 shall install, alter, or add to any electrical equipment, and no such installation, alteration or addition shall be made without first obtaining a permit therefor from the Building Official. Permits may be issued only to registered master electricians, registered maintenance electricians, and homeowners in accordance with Section 23.10.160.

EXCEPTION: Licensed State of Nebraska fire alarm installers registered with the City of Lincoln may be issued permits for the installation of the low voltage portion of fire alarm systems.

(b) No permit, license, or registration shall be required to execute any of the classes of electrical work as follows:

(1) Minor repair work such as, but not limiting the generality of the term to, repairing flush and snap switches, replacing fuses, changing lamp sockets and receptacles, taping joints, repairing drop cords, and repairing appliances, motors, and other devices when not attached to permanent wiring; the wiring which is an integral part of machinery, appliances, or vehicles; experimental work of a temporary

nature in testing laboratories of electrical shops, educational institutions and the like; wiring supplied with current by approved bell-ringing transformers; and the attaching of portable appliances to existing outlets.

(2) The installation, alteration, or repair of electrical equipment for the operation of signals or the transmission of intelligence by wire.

EXCEPTION: The requirements of Article NEC 300.22 shall apply to such wiring.

(3) The installation, alteration, or repair of electrical equipment installed by or for an electricity supply agency for the use of such agency in the generation, transmission, distribution, or metering of electricity.

(4) Installation, alteration, or repair made to electrical equipment, where such equipment operates at a voltage not exceeding fifty volts, except emergency alarm systems and other installations specifically referred to in this code. Regardless of operating voltage, all conductors of any system shall comply with the requirements of NEC Article 300.22. This shall not be construed as preemption of National Electrical Code Requirements for low voltage systems such as those found in NEC Articles 411, 480, and Chapters 5, 6, 7, and 8.

(5) Repairs made by and within the authority granted to the holders of maintenance registrations as provided in this code.

(6) Any work involved in the manufacture, test, or repair of electrical materials, devices, appliances, or apparatus, but not including any permanent wiring other than that required for testing purposes.

(7) Repair or replacement of motors on fixed approved appliances of the same type and rating in the same location.

(8) The adjustment, repair, or maintenance of appliances designed to consume natural or artificial gas, fuel oils, or coal; provided, this exception shall not permit the replacement of an existing motor with one of a different rating.

The exceptions enumerated above shall not be construed to exempt any person, firm, or corporation from compliance with the standards prescribed by this code for the installation of electrical equipment, or from inspection as provided herein.

(c) Electrical equipment installed and/or connected to a source of electrical power by a nonregistered person or a registered person or homeowner without a permit, or causing a registered or nonregistered person to install and/or connect electrical equipment to a source of electrical power in violation of the provisions of the ordinance shall constitute a violation of this code and be subject to the penalty of Section 23.10.090 of this code. (Ord. 17049 §3; August 19, 1996: prior Ord. 15580 §10; June 4, 1990: Ord. 14228 §14; September 30, 1985).

23.10.150 Issuance of Permit.

Applications for permits to install, alter, or add to electrical equipment shall be on forms furnished for that purpose by the Building Official and shall contain all information necessary to the lawful enforcement of the provisions of this code. Each application shall be accompanied by such plans and specifications as are required by the Building Official to determine that the work proposed conforms to the requirements of this code. The approval of any plans and/or specifications shall not be construed to sanction any violation of this code.

When the Building Official determines that the information on an application is in conformance with this code, the Building Official shall issue a permit upon receipt of the permit fees hereinafter prescribed.

No permittee shall deviate materially from any approved plans or specifications or fail, neglect, or refuse to comply therewith, unless permission to do so has been obtained from the Building Official or an authorized representative.

The issuance of a permit based upon plans and specifications shall not prevent the Building Official from thereafter requiring the correction of errors in said plans and specifications or preventing the initiation or continuance of work thereunder when in violation of this code or any other ordinance. (Ord. 17049 §4; August 19, 1996: prior Ord. 15580 §11; June 4, 1990: Ord. 14228 §15; September 30, 1985).

23.10.160 Installation by Homeowner.

Citizens may install electrical wiring only in a single family residence which they own and occupy or will occupy as their home. All electrical wiring installed by homeowners shall be for themselves, without compensation or pay from or to any other person for such labor or installation. Such installation by a homeowner shall comply with the requirements of this code, and the homeowner in exercising this privilege shall not constitute or be considered as an electrical contractor. The homeowner shall be required to file plans, demonstrate knowledge of code requirements, apply for and secure a permit, pay the required permit fees, and call for all inspections in the manner provided by this code.

The Department of Building and Safety may deny the issuance of electrical permits to homeowners under any one of the following circumstances:

(a) There is reason to believe the proposed electrical work will be done by someone other than the owner;

(b) There is reason to believe the property is or will be sold on the completion of the electrical work. For the purposes of this subsection (b) there is a rebuttable presumption that the property is or will be sold on the completion of the electrical work if the applicant, within the prior five years, has sold his or her home and the electrical work for said home was performed by the applicant under a homeowner's permit.

(c) Previous homeowner electrical permits have not been completed in compliance with this code;

(d) The owner is temporarily residing in the home.

If the homeowner is found to have at any time violated or falsified any of the above items, they shall immediately cease all electrical work, forfeit the homeowner's permit, and obtain a registered electrical contractor to complete the electrical work in compliance with the code.

Appointments for required inspections shall not be made with the exception that inspection requests may be scheduled for a given day. The inspection shall be performed on the day requested by the homeowner. The homeowner, if unable to be present during the normal working hours of a day, shall be required to supply a key or other means of access for the inspection to be performed. Homeowners may be granted one reinspection per permit without reinspection fee charge. Further reinspections will require payment of the reinspection fee provided for in the electrical permit fee schedule. (Ord. 17049 §5; August 19, 1996: prior Ord. 16384 §5; June 14, 1993: Ord. 15580 §12; June 4, 1990: Ord. 14228 §16; September 30, 1985).

23.10.170 Inspections, Conducted by Building Official.

The Building Official or an authorized representative are hereby authorized to make such inspections and take such action provided by law as may be necessary to enforce the provisions of this code. (Ord. 15580 §13; June 4, 1990: prior Ord. 14228 §17; September 30, 1985).

23.10.180 Inspections, Required.

The installation, alteration, or addition to any electrical equipment for which a permit is required shall be subject to inspections by the Building Official or an authorized representative. (Ord. 15580 §14; June 4, 1990: prior Ord. 14228 §18; September 30, 1985).

23.10.190 Inspections, Request for.

Inspections of the installation, alteration, repair, or addition to electrical equipment under the provisions of this code shall be requested by the person, firm, corporation or authorized representative holding the permit for such work. The Building Official may require that every request for inspection be filed at least one working day before the inspection is desired. Such request may be in writing, by electronic transmission, or by telephone, at the option of the Building Official. Requests for inspection must include the permit number, electrical contractor name, address and suite number, if applicable, and means of access. Appointments for required inspections shall not be made with the exception that inspection requests may be scheduled for a given day. It shall be the duty of the person requesting inspection of electrical equipment to provide access to and a means for proper inspection of such equipment. The person requesting final inspection shall determine that the electrical equipment is operational before requesting such final inspection. (Ord. 18012 §2; June 17, 2002: prior Ord. 17521 § 2; July 6, 1999: Ord. 16384 §6; June 14, 1993: Ord. 15580 §15; June 4, 1990: Ord. 14228 §19; September 30, 1985).

23.10.195 Inspections, Procedures.

Pursuant to Section 23.10.170:

(a) No portion of any electrical equipment intended to be concealed by any permanent portion of a building including thermal insulation shall be concealed until inspected and/or approved by the Building Official. When the installation, alteration, or addition to any electrical equipment is complete, a final inspection shall be made. Failure of the contractor to schedule and request such final inspection shall be reason for withholding the issuance of further permits.

(b) When the electrical inspector finds an installation to not be in compliance with this code, the inspector shall issue a correction order. The correction order shall be issued to the person, firm, or corporation holding the permit for the work. The order shall specify a date, not more than fifteen calendar days from the date of the order, when a final inspection shall be made. If required corrections have not been completed, or access to complete the inspection has not been provided, a reinspection fee shall be levied and arrangements shall be made to complete the work. If at the time of final inspection the installation has not been brought into compliance, a disconnection order may be issued by the Building Official.

(c) The requirements of this section shall not be considered to prohibit the temporary use of electrical energy for electric wiring, before final approval thereof when so authorized by the Building Official and with such restrictions upon such temporary use as may be necessary to ensure safety, secure compliance with all other provisions of this code, and facilitate inspection.

A meter installed in the regular meter socket and left unsealed shall be considered a temporary use of electrical energy under this section.

The temporary use of electrical energy may be ordered discontinued and the supply disconnected upon notice to the user by the Building Official. No temporary use of electrical energy shall be permitted in any case where a hazard to persons or property would be created.

(d) A final inspection certificate of approval may, upon notice, be revoked by the Building Official if it is found that the electrical equipment fails in any respect to comply with the requirements of this code, or that the installation is unsafe to persons or property. Corrections not made and approved by the Building Official in the allotted time shall be grounds for withholding further permits until corrections are made and approved by the Building Official. (Ord. 17049 §6; August 19, 1996: prior Ord. 16384 §7; June 14, 1993: Ord. 15580 §16; June 4, 1990).

23.10.200 Registration of City and State Electricians of All Classes.

(a) No person, firm, or corporation shall install, alter, or add to any electrical equipment, except such installations as are described in Section 23.10.160 within the corporate limits of the City of Lincoln and three miles thereof without first being registered to do so as hereinafter provided. Work done by employees of and for the holders of maintenance registrations pursuant and within the scope of work permitted by such registration shall be deemed to be in compliance with this section.

(b) Application for registration as a City licensed master electrician, journeyman electrician, maintenance electrician, or electrician's apprentice shall be made to the Building Official on a form furnished by the Building Official for such purpose. Such form shall require the name, address, and telephone number of the applicant, a statement of the practical experience of the applicant, and such other relevant information as may be required by the Building Official.

(c) Persons holding State of Nebraska Class A or State of Nebraska equivalent Electrical Contractor Licenses, Master Electrician Licenses, Journeyman Electrician Licenses, State Apprentice Licenses, or State Fire Alarm Installer Licenses shall register their state license either annually or biennially and submit the insurance certificate herein required annually with the Building Official before performing any electrical work covered by this code. No electrical permits shall be issued to any state license holder until such registration and insurance certificate are approved. A registration fee in accordance with the combined fee and price schedule shall accompany all applications for registration. State electrical licenses, except those five mentioned above, will not be recognized by the City of Lincoln as being in compliance with this code. City registrations of State licenses shall expire (1) when the State license expires, or (2) when the twelve month term of registry is over, whichever comes first. This expiration date shall be recorded on the State license.

(d) Automatic registration. Any master electrician, State Class A license holder, journeyman electrician, maintenance electrician, electrician's apprentice, or state fire alarm installer duly registered at the time of the adoption of this code shall be automatically registered in the same classification under the provisions of this code, without further examination. Approved documentation of six contact hours of continuing education per year shall be presented to renew all registrations other than apprentice.

(e) A valid registration or license of one or more of the classifications listed above shall be carried at all times while work is being executed. Any person checked and found to not be in possession of such license shall be deemed in violation of this code, and shall immediately cease work and obtain said license prior to engaging in further electrical installation.

(f) Registered electrical contractors may employ or supervise, or provide journeyman supervision for apprentice electricians at a ratio not to exceed three apprentice electricians to one licensee. (Ord. 17521 § 3; July 6, 1999: prior Ord. 17049 §7; August 19, 1996: Ord. 16384 §8; June 14, 1993: Ord. 15580 §17; June 4, 1990: Ord. 14228 §20; September 30, 1985).

23.10.210 Examination for City Registration.

Before a registration certificate shall be issued, the applicants shall be required to submit to and pass a written examination to determine their qualifications and fitness for executing the class of work covered by the registration for which application is made. Such examination shall be given under the direction of the Electrical Board. (Ord. 17521 § 4; July 6, 1999: prior Ord. 15580 §18; June 4, 1990: Ord. 14228 §21; September 30, 1985).

23.10.220 Examination and Registration Fees.

Each applicant for a City electrical examination of any class shall pay an examination fee of fifty dollars.

Upon initial issuance or subsequent annual renewal of a city registration certificate, a registration fee shall be paid as follows:

Master electrician registration fee	$ 60.00
State Fire Alarm Installer registration fee	$ 60.00
Journeyman electrician registration fee	$ 20.00
Maintenance electrician registration fee	$100.00
Electrician's apprentice registration fee	$ 12.00

(Ord. 17079 §1; October 21, 1996: prior Ord. 17049 §8; August 19, 1996: Ord. 16384 §9; June 14, 1993: Ord. 15580 §19; June 4, 1990: Ord. 14228 §22; September 30, 1985).

23.10.230 Classification of City Registrations.

There shall be five classes of city registrations, as follows:

(a) A **master** electrician is hereby defined to be any person skilled in the planning, superintending, and practical installation of electrical equipment as defined in this code and who is familiar with the ordinances and regulations governing the same, and who is competent to install, repair, or alter electrical equipment, with the full responsibility of supervision, whether doing such work themselves or employing journeymen electricians and apprentices to assist them.

(b) A **journeyman** electrician is hereby defined to be any person other than a master electrician, a maintenance electrician, or an electrician's apprentice, who is skilled in the practical installation, alteration, or repair of electrical equipment as defined in this code.

(c) A **maintenance** electrician is hereby defined to be a master electrician, a registered professional engineer, or a graduate electrical engineer of an accredited college or university or a journeyman electrician who has passed the maintenance examination who is regularly and permanently employed by any person, firm, or corporation, and is responsible for the installation, alteration, maintenance, and repair of electrical wiring and equipment on premises owned or occupied by such person, firm, or corporation. Such registration shall designate the premises for which it is issued. The application

for such registration shall state the name or names of the master electrician, or registered professional engineer, or graduate electrical engineer or journeyman electrician who has passed a maintenance examination, regularly employed as such on a full-time basis by the applicant on the premises for which the registration is requested.

The person so designated in the application for a maintenance registration shall be a regular full-time employee of the registration holder. No such registration shall be sold, transferred, loaned, or allowed to be used by anyone other than its holder. No such registration shall entitle the holder or any employee of the holder to act under such registration as an electrical contractor, or to perform any of the operations, electrical work, or construction permitted under such registration for anyone other than the registration holder. Such registration shall permit its holder to make installations, alterations, repairs, or additions only in buildings existing on the premises designated in such registration at the time of the application therefor. Such installations, alterations, repairs, or additions shall be performed under the supervision of the person designated in such application, and permits for work as described in Sections 23.10.130 and 23.10.140 shall be required.

(d) An **electrician's apprentice** is hereby defined to be any person other than a master electrician, a journeyman electrician or maintenance electrician, who, as such person's principal occupation, is engaged in learning and assisting in the installation, alteration, and repair of electrical equipment as an employee of a master electrician.

It shall be unlawful for any person to work as an electrician's apprentice without first obtaining an electrician's apprentice registration. Such registration shall entitle the holders thereof to act as an electrician's apprentice to a registered master electrician or journeyman electrician; provided, that at all times their work under such registration is under the direct supervision and control and in the immediate presence of said master electrician or journeyman electrician. Such registration shall be issued for a period of one year and may be renewed annually upon compliance with the same terms and conditions as prescribed herein for securing an original registration.

Any electrician's apprentice who shall install, alter, or repair electrical equipment other than under the direct supervision and control and in the immediate presence of a registered master electrician or journeyman electrician shall be deemed in violation of the provisions of this code.

Any registered master electrician or journeyman electrician hereunder who shall permit or cause an electrician's apprentice to install, alter, or repair electrical equipment other than as provided herein, shall be deemed in violation of the provisions of this code.

(e) A registered **state fire alarm installer** is any person licensed by the state as a fire alarm installer and registered with the City of Lincoln pursuant to Section 23.10.200(c). State fire alarm installers shall be allowed to install the low potential (less than fifty volts) portion, including detectors, of fire alarm systems only. Conductors and equipment operating at a potential of greater than fifty volts shall be installed only by a registered electrician.

No license or registration of lesser grade, or issued by jurisdictions other than those enumerated in Sections 23.10.200(c) and 23.10.230, shall be considered valid in the City of Lincoln's jurisdiction. (Ord. 17049 §9; August 19, 1996: prior Ord. 16384 §10; June 14, 1993: Ord. 15580 §20; June 4, 1990: Ord. 14228 §23; September 30, 1985).

23.10.240 Renewal of Registration.

All registrations provided by this code shall expire one year after the date of issuance, with the exception of state licenses, which may be registered for a two-year period concurrent with the license expiration. Registrations at the time of their expiration may be renewed for the succeeding year without an examination upon payment of the registration fee provided in Section 23.10.220. Registered master electricians or journeyman electricians who do not renew their registrations within a period of three months from the date of expiration of the same shall be required to submit and pass a written examination for the appropriate registration and shall pay the examination fee required therefor. (Ord. 17049 §10; August 19, 1996: prior Ord. 16384 §11; June 14, 1993: Ord. 14228 §24; September 30, 1985).

23.10.250 Registration to be Used Only by Holder.

Any registered electrician of any class herein provided who allows his or her name to be used by another person, firm, or corporation, directly or indirectly, either to obtain a permit, or to install, alter, or add to any electrical equipment shall be deemed in violation of this code. (Ord. 17049 §11; August 19, 1996: prior Ord. 15580 §21; June 4, 1990: Ord. 14228 §25; September 30, 1985).

23.10.260 Suspension or Revocation of Registration.

The Electrical Board, upon the recommendation of the Building Official and after conducting a hearing as herein provided, shall have the power to suspend or revoke any registration of any class of registered electrician hereunder if the same was obtained by error or fraud, or if the holder thereof is shown to be no longer qualified, or if such holder fails to comply with the provisions of this code.

Where the Building Official has recommended suspension or revocation of a registered electrician's certificate of registration, the Building Official shall cause written notice to be served upon the registered electrician whose registration has been recommended for suspension or revocation, setting forth the time and place for a public hearing thereon. Such written notice shall be served by certified mail or registered mail to the registrant's last known business address. At such hearing, the Electrical Board shall hear all parties concerned and afford them the following rights, among others:

(a) To call and examine witnesses on any matter relevant to the issues of the hearing;

(b) To introduce documentary and physical evidence;

(c) To cross-examine opposing witnesses on any matter relevant to the issues of the hearing; and

(d) To rebut the evidence against him or her.

The electrical board shall then within a reasonable time after the hearing render a written decision, setting forth its findings and conclusions. If a certificate is revoked, the holder of the same shall not apply for a new registration until one year after the date of such revocation. Decisions of the Electrical Board are final unless appealed as provided by law. (Ord. 14228 §26; September 30, 1985).

23.10.270 Certificates of Insurance; Master Electrician and State Fire Alarm Installer.

Before any master electrician or fire alarm installer as defined herein may be issued a permit to install, alter, or add to electrical equipment hereunder, such master electrician or fire alarm installer shall be required to:

(a) At all times maintain public liability insurance coverage for all claims arising out of all work in the City of Lincoln and within three miles of the corporate limits thereof done by or under the supervision of the master electrician or fire alarm installer under the provisions of this code. Such insurance shall be

in the form of a commercial or comprehensive general liability policy, or an acceptable substitute policy form as permitted by the City Attorney, with a minimum combined single limit of $500,000.00 aggregate for any one occurrence on any job for which a permit is required under this code, provided the City of Lincoln shall be named an additional insured thereunder. The coverages required herein shall be subject to review and approval by the City Attorney for conformance with the provisions of this section.

(b) At all times keep on file with the Building Official a current certificate of insurance signed by a qualified agent of an insurance company licensed to do business in the State of Nebraska and approved by the City Attorney for conformance with the provisions of this section evidencing the existence of valid and effective policies of insurance naming the city as an additional insured for the coverage required by subsection (a) of this section, the limits of each policy, the policy number, the name of the insurer, the effective date and expiration date of each policy, the deductibles or self-insurance retainers of each policy, and a copy of an endorsement placed on each policy requiring thirty days notice by mail to the Building Official before the insurer may cancel the policy for any reason, and upon request of the Building Official or the City Attorney, a copy of any endorsements placed on such policies or the declarations page of such policies.

Separate certificates of insurance showing the master electrician or fire alarm installer to be covered under one policy and the city to be covered under another policy may be deposited in lieu of a single certificate, at the option of the master electrician or fire alarm installer. All certificates of insurance shall provide that in the event of expiration or cancellation of any of said minimum insurance requirements, the Building Official of the City of Lincoln, Nebraska, shall be given at least thirty days advance written notice thereof. Any termination, reduction, or lapse of such insurance coverage shall automatically terminate the master electrician's or fire alarm installer's privilege to be issued permits under the provisions of this code, unless other insurance meeting the requirements of this section is provided and in full force and effect at the time of such expiration or cancellation. (Ord. 15930 §3; July 29, 1991: prior Ord. 15580 §22; June 4, 1990: Ord. 14228 §27; September 30, 1985).

23.10.280 Wiring of Temporary Construction Walkways.

Temporary construction walkways shall be wired in metallic or nonmetallic conduit, except wood constructed temporary walkways may be wired with nonmetallic sheath cable or electrical nonmetallic tubing when the wiring will be concealed within the walls and ceiling of the structure. (Ord. 15580 §23; June 4, 1990: prior Ord. 14228 §28; September 30, 1985).

23.10.290 Wiring Methods.

(a) Approved metallic conduit, nonmetallic conduit, electric nonmetallic tubing, manufactured wiring systems specifically approved by the authority having jurisdiction, and approved wireway or cable tray shall be used in the installation of all electrical equipment in or on all other buildings, structures, tents, and premises than those enumerated in subsection (b) of this section. All metallic wire enclosures shall be electrically and mechanically continuous and grounded. The above wiring methods shall also be acceptable for those occupancies listed in subsection (b) of this section. Flexible metal conduit may be used for fished-in connections, where flexibility or sound isolation is required and for extensions of approved raceway systems where their installation is not possible because of building requirements. Flexible metal conduit shall not be used as a general wiring method. Where exposed to weather or in wet or damp locations, liquid-tight flexible metallic or nonmetallic conduit or heavy gauge steel flexible metal conduit shall be used

with the appropriate conductors and listed connectors. Assemblies specifically listed or approved as a grounding means shall be allowed. All other flexible metal or liquid-tight flexible metal raceways shall incorporate an equipment grounding conductor. Plastic fiber ducts and strips may be used for surface extensions. Where electrical nonmetallic tubing is installed through steel studs, grommets shall be installed.

It is the intent of this section to require a substantial, approved raceway system in which conductors may be installed.

EXCEPTION (1): Fire alarm systems of fifty volts or less and installed in accordance with NEC Article 760 shall not be required to be installed in a conduit system, except if required to comply with NEC Article 300.22.

(b) Nonmetallic sheathed cable may be used for the installation of all concealed electrical equipment within the following buildings:

(1) Single-family dwellings;

(2) Private garages with six parking stalls or less, which are used in connection with private or multi-family dwellings;

(3) Outbuildings used in connection with a private or multi-family dwelling, such as tool houses, hobby shops, and similar structures;

(4) Buildings now wired with metallic protected wiring which will be used in the future for dwelling purposes only;

(5) Multi-family dwellings (apartment houses) not exceeding three stories above grade, where each unit within such dwelling has individual distribution panels located in each unit; however, all feeders or subfeeders to each unit shall be installed in rigid metal conduit, intermediate metal conduit, electrical metallic tubing, or rigid nonmetallic conduit.

EXCEPTION: In existing structures only, service equipment and sub-panels may be located in a common area accessible to all occupants, provided individual dwelling unit home runs are routed in a raceway between the sub-panel and the unit.

The word "concealed" as used in this section shall mean protected from mechanical injury by being installed between or through holes bored in rafters, studding, floor joists, or being fished in the air voids in masonry walls or partitions of buildings.

(c) Nonmetallic boxes. Where nonmetallic boxes are used with open wiring or concealed knob-and-tube wiring, the conductors shall enter the box through individual holes. Where flexible tubing is used to encase the conductors, the tubing shall extend from the last insulating support to no less than one-fourth inch inside the box. Where nonmetallic sheathed cable is used, the cable assembly, including the sheath, shall extend into the box no less than one-fourth inch through a nonmetallic sheathed cable knockout opening. Where nonmetallic sheathed cable is used with nonmetallic boxes and where the cable is fastened within eight inches of the box measured along the sheath and where the sheath extends into the box no less than one-fourth inch, securing the cable to the box shall not be required. In all other instances, individual conductors and cables shall be secured to nonmetallic boxes.

(d) Underground conductors shall be installed as follows: Direct burial conductors, 30 inches minimum; non-metallic raceways, a minimum of 18 inches of cover; asphaltum protected or PVC coated rigid or IMC conduits, a minimum of 6 inches of cover. Electrical Metallic Tubing (EMT) shall not be used for direct earth burial.

Exception 1. A minimum 24 inches of cover shall be provided for any raceway installed beneath streets, roads, alleys, driveways, parking lots, or runways.

Exception 2. The authority having jurisdiction may grant special permission for lesser depths when location, construction parameters, etc., provide the same level of safety.

(e) Overhead conductors running from pole to pole, building to building, or pole to building, may be installed as open conductors approved for that purpose by the Building Official.

(f) Branch circuits or feeders supplying power to sub-panels, appliances, or other utilization equipment shall incorporate a separate equipment grounding means.

(g) Branch circuit or feeder conductors No. 6 and smaller shall be copper.

(h) Alternate energy sources: Prior to the installation of any electrical generating equipment, whether or not said equipment is capable of co-generation, plans and specifications for such shall be submitted to and approved by the Building Official and the power supplier.

NOTE: Persons wishing to install such equipment should first contact their power supplier and the City of Lincoln Department of Building and Safety.

Two permanent plaques shall be installed, one at the main disconnect for the normal power supply and one at the meter location of the power supplier stating the location of the disconnecting means for the alternate energy source. (Ord. 18012 §3; June 17, 2002: prior Ord. 17049 §12; August 19, 1996: Ord. 16384 §12; June 14, 1993: Ord. 15580 §24; June 4, 1990: Ord. 14228 §29; September 30, 1985).

23.10.300 Services, Disconnects, Sub-feeders and Metering Requirements.

Service disconnecting means shall contain the proper overcurrent devices, connected in series with the service conductors to adequately protect all ungrounded conductors from overload. These disconnects shall have a fault current interrupting rating equal to or greater than the computed available fault current. It shall be the responsibility of the electrical contractor to obtain the value of the fault current available from either the project design engineer or the power supplier. Approved service equipment consisting of fuses or circuit breakers installed in line-meter-fuse sequence shall be used on all installations requiring main fusing of 200 amperes or less.

EXCEPTION: CT metering as required by the power supplier such as for a 100-amp, 277/480 volt service.

Approved dead front distribution panels and fuse centers shall be used in all cases.

Service entrance conductors and panel sub-feeder conductors except the equipment ground shall all be the same size and have an ampacity in accordance with NEC Tables 310.16 through 310.19 and applicable notes for the maximum rating of the overcurrent device(s) or service.

EXCEPTION (1): For center-grounded delta systems only, where a fused switch is provided for the service disconnect, a reduction in size of the high leg conductor with a corresponding reduction in overcurrent protection shall be permitted.

EXCEPTION (2): Service entrance and sub-feeder conductors may utilize a reduced neutral conductor, provided the plans which are submitted for review prior to the issuance of a building permit include adequate information to justify reduced neutral ampacity.

Self-contained 400-amp single phase meter sockets shall be permitted to supply two 200-amp panels for residential use only. These meter sockets shall be permitted to be used for commercial occupancies only if the combined rating of the main breakers is less than 320 amps.

The service disconnect shall be mounted as close to the point of service entrance as possible. Each building or occupancy within a building having a service rated 200 amperes or less shall have one main disconnect. When more than one service or main disconnect is provided, per building or multi-occupancy

building, said services or disconnects shall be placed immediately adjacent to each other, unless otherwise specifically authorized by the Building Official, and shall be clearly labeled in a permanent manner as to their voltage characteristics and the area or portion of the building or premises that is being served by each disconnect. If located inside a building, and not mounted on the outside wall directly opposite the point of entrance, the service conductors shall be enclosed in conduit or raceway encased with two inches of concrete, four inches of brick, or eight inches of hollow block or tile from the point of entrance to the service disconnect enclosure.

In general, metering equipment should be installed on the supply side of the service disconnect. Meters on the outside of a building or structure shall be located not less than three feet from the bottom of the glass nor more than six feet from the top of the glass measured from permanent grade and shall be installed in such a manner as not to be subject to mechanical damage. Conduits for underground services or feeders shall be sleeved and/or incorporate expansion fittings as required to prevent damage to service equipment.

EXCEPTION: Where three or more meters are stacked vertically, the bottom of the lowest meter shall be at least twenty inches above finished grade and the top of the highest meter shall not exceed eight feet.

Potential reference and instrument transformer wires installed between service equipment or CT cabinets and the meter socket may extend up to ten feet within a structure without raceway concrete encasement, provided the raceway is of rigid metal conduit. Runs of conduit for unfused metering conductors exceeding ten feet shall be installed below grade, or be encased in not less than two inches of concrete, four inches of brick, or eight inches of hollow block or tile.

Service repairs for existing installations shall include the installation of insulating sleeves or bushings, and a permit shall be applied for in each case where either the meter seal is broken or the service drop is disconnected. Special permission for variances to points of attachment, service, and feeder heights required in the National Electrical Code may be granted by the authority having jurisdiction. Each request for permission for variance shall be considered individually, and approval for variance must be obtained or the height requirements of the NEC must be conformed with. The electrical contractor shall ensure proper overcurrent protection is provided in accordance with NEC Articles 240.51(b) and 240.53. Proper bonding and grounding of the service shall be ensured. The main grounding electrode conductor will be allowed to be attached to a cold water pipe for these repaired installations, provided there is a continuous conductive path provided by the water pipe to the water service entrance and the water meter is bonded.

NOTE: It is the intent of this section to require the main grounding electrode conductor be routed to a terminal location least likely to lose continuity to the electrode by insertion into the water system of non-conductive plumbing fittings. When rigidly attached permanent building finish does not prevent it, the main ground shall be run to the street side of the water meter. This shall apply to new, repaired, and re-wired services only in existing structures. See Section 23.10.360 for new construction requirements, also see exception in 23.10.360. (Ord. 17049 §13; August 19, 1996: prior Ord. 16384 §13; June 14, 1993: Ord. 15580 §25; June 4, 1990: Ord. 14228 §30; September 30, 1985).

23.10.310 Power Supplies For Fire Alarm, Exit, and Emergency Lighting Systems; Specific Requirements.

Where automatically transferred power provided by a stand-by generator is available on the premises, these systems shall be provided power from the load side of the transfer switch, unless unit equipment provided with battery backup is utilized. Sources of primary and emergency power for all other installations shall comply with the requirements of NEC Article 700.

Regardless of the source of primary power to a fire alarm system, whether or not an emergency generator is provided, battery back-up shall be supplied in accordance with NEC Section 700.12(a).

NOTE: See also Sections 23.10.130, 23.10.140, 23.10.200, 23.10.230, 23.10.270, 23.10.510, and 23.10.520 of the city ordinance regarding fire alarms. (Ord. 17049 §14; August 19, 1996: prior Ord. 15580 §26; June 4, 1990: Ord. 14228 §31; September 30, 1985).

23.10.312 Article 100 Definitions Amended; Service Conductors; Special Permission.

Article 100 of the National Electrical Code is amended to include the definition of "Service Conductors" and “Special Permission” as follows:

Service Conductors: The conductors from the service point or other source of power to the service disconnecting means.

Special Permission: The consent of the authority having jurisdiction. (Ord. 18012 §4; June 17, 2002: prior Ord. 17521 § 5; July 6, 1999).

23.10.315 Section 110.16(a) Amended; Working Clearances.

(Repealed by Ord. 17521 § 6; July 6, 1999: prior Ord. 17049 §15; August 19, 1996).

23.10.320 Section 210.8(B) Amended; Ground Fault Protection for Personnel, Receptacles Other Than Dwelling Units.

Section 210.8(B) of the National Electrical Code is hereby amended to read as follows:

210.8(B) Ground Fault Protection for Personnel, Other Than Dwelling Units. All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified in (1), (2), (3), (4), and (5) shall have ground-fault circuit-interrupter protection for personnel:

(1) Bathrooms

(2) Rooftops

(3) Kitchens

(4) Wet bar sinks, where the receptacles are installed to serve the countertop surfaces, and are located within 1.8m (6 feet) of the outside edge of the wet bar sink.

(5) Receptacles within 1.8m (6 feet) of wet work areas such as wash down areas and utility sinks.

Exception 1. Receptacle outlets for refrigeration equipment.

Exception 2. Receptacles which are not readily accessible and are supplied from a dedicated branch circuit for electric snow-meting or de-icing equipment shall be permitted to be installed in accordance with the applicable provisions of Article 426.

FPN: It is the intent of this section to require ground-fault circuit-interrupter protection in areas where electricity is being used in close proximity to water sources.

Section 210.8 Amended; Ground Fault Circuit Protection For Personnel. (Ord. 18012 §5; June 17, 2002: previous §23.10.320 repealed by Ord. 17049 §16; August 19, 1996: Ord. 16384 §14; June 14, 1993: Ord. 15580 §27; June 4, 1990: Ord. 14228 §32; September 30, 1985).

23.10.323 Section 210.11(c)(3) Amended; Bathroom Circuits.

Section 210.11(c)(3) of the National Electrical Code is hereby amended to read as follows:

Section 210.11(c)(3). Bathroom Circuits. In dwelling units, at least one wall receptacle outlet shall be installed in bathrooms adjacent to each basin location. Bathroom receptacle outlets shall be supplied by at least one 20-ampere branch circuit. No more than two bathrooms shall be supplied by each 20-ampere circuit. Such circuits shall have no other outlets. See Section 210.8(a)(1). Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops in a bathroom basin location.

EXCEPTION: A 15-ampere branch circuit may be used to supply outlets for one bathroom. Additional outlets can be placed on the 15-ampere circuit at the discretion of the authority having jurisdiction. (Ord. 17521 § 7; July 6, 1999).

23.10.324 Section 210.12 Deleted; Arc Fault Circuit Interrupters.

Section 210.12 of the 2002 National Electrical Code is hereby deleted in its entirety. (Ord. 18012 §6; June 17, 2002).

23.10.325 Section 210.52 Amended; Dwelling Unit Receptacle Outlets.

(Repealed by Ord. 17521 § 8; July 6, 1999: prior Ord. 17049 §17; August 19, 1996: Ord. 16384 §15; June 14, 1993).

23.10.327 Section 210.52(c)(2) Amended; Island Counter Space Receptacle Requirements.

Section 210.52(c)(2) of the National Electrical Code is hereby amended to read as follows:

210.52(c)(2). Island Counter Spaces. At least one receptacle outlet may be installed at each island counter space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. (Ord. 17521 § 9; July 6, 1999).

23.10.329 Section 210.52(c)(3) Amended; Dwelling Unit Peninsular Counter Space Receptacle Requirements.

Section 210.52(c)(3) of the National Electrical Code is hereby amended to read as follows:

210.52(c)(3). Peninsular Counter Space Receptacles. At least one receptacle outlet may be installed at each peninsular counter space with a long dimension of 24 inches (610 mm) or greater and a short dimension of 12 inches (305 mm) or greater. A peninsular counter top is measured from the connecting edge. (Ord. 17521 § 10; July 6, 1999).

23.10.330 Section 210.63 Amended; Heating, Air-Conditioning, and Refrigeration Equipment Outlet.

Section 210.63 of the National Electrical Code is hereby amended to read as follows:

210.63. Heating, Air-Conditioning, and Refrigeration Equipment Outlet. This section of the National Electrical Code shall apply to new installations only. For the purposes of this section, 'new installations' shall mean all new construction, and existing structures which are being equipped with an air

conditioner or heat pump for the first time. It is not the intent of this section to require a receptacle to be installed for replacement units.

This receptacle, whether located at grade level or on rooftops, shall be ground fault circuit interrupter protected. An existing receptacle fulfilling all the criteria of this section shall be considered as meeting the intent of this requirement. (Ord. 18012 §7; June 17, 2002: prior Ord. 17521 § 11; July 6, 1999: Ord. 17049 §18; August 19, 1996).

23.10.331 Section 210.70 Amended; Lighting Outlets Required.

Section 210.70 of the National Electrical Code is hereby amended to read as follows:

210.70 Lighting Outlets Required. Lighting outlets shall be installed where specified in (a), (b), and (c).

(a) Dwelling Units. In dwelling units, lighting outlets shall be installed in accordance with (1), (2), and (3).

(1) Habitable Rooms. At least one wall switch-controlled lighting outlet shall be installed in every habitable room and bathroom.

Exception No. 1: In other than kitchens and bathrooms, one or more receptacles controlled by a wall switch shall be permitted in lieu of lighting outlets.

Exception No. 2: Lighting outlets shall be permitted to be controlled by occupancy sensors that are (1) in addition to wall switches or (2) located at a customary wall switch location and equipped with a manual override that will allow the sensor to function as a wall switch.

(2) Additional Locations. At least one wall switch-controlled lighting outlet shall be installed in hallways, stairways, attached garages, and detached garages with electric power; and to provide illumination on the exterior side of outdoor entrances or exits with grade level access. A vehicle door in a garage shall not be considered as an outdoor entrance or exit. Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the difference between floor levels is six steps (risers) or more.

Exception: In hallways, stairways, and at outdoor entrances, remote, central, or automatic control of lighting shall be permitted.

(3) Storage or Equipment Spaces. For attics, underfloor spaces, utility rooms, and basements, at least one lighting outlet controlled by a wall switch shall be installed where these spaces are used for storage or contain equipment requiring servicing. At least one point of control shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing.

(b) Guest Rooms. At least one wall switch-controlled lighting outlet or wall switch-controlled receptacle shall be installed in guest rooms in hotels, motels, or similar occupancies.

(c) Other Locations. For attics and underfloor spaces containing equipment requiring servicing, such as heating, air-conditioning, and refrigeration equipment, at least one lighting outlet controlled by a wall switch shall be installed in such spaces. At least one point of control shall be at the usual point of entry to these spaces. The lighting outlet shall be provided at or near the equipment requiring servicing. (Ord. 18012 §8; June 17, 2002: prior Ord. 17521 § 12; July 6, 1999).

23.10.332 Section 220.3(b)(7) Amended; Show Window Lighting Calculations.

Section 220.3(b)(7) of the National Electrical Code is hereby amended to read as follows:

220.3(b)(7). Show-Window Lighting. For show-window lighting, a load of not less than 200 volt-amperes shall be included for each linear foot (305 mm) of show window, measured horizontally along its base. (Ord. 17521 § 13; July 6, 1999).

23.10.333 Section 220.12(b) Amended; Track Lighting Calculations.

Section 220.12(b) of the National Electrical Code is hereby amended to read as follows:

220.12(b) Track Lighting. For track lighting in other than dwelling units or guest rooms of hotels or motels, an additional load of 200 volt-amperes shall be included for every two feet (610 mm) of lighting track or fraction thereof. This load calculation shall be used to compute overall track lengths allowable on individual circuits. Maximum allowable circuit loading shall be considered to be 80 percent of the rating of the branch circuit overcurrent device. (Ord. 17521 § 14; July 6, 1999).

23.10.335 Section 230.43 Amended; Wiring Methods for 600 Volts Nominal, or Less.

Section 230.43 of the National Electrical Code is hereby amended to read as follows:

230.43. Wiring Methods for 600 Volts, Nominal, or Less. Service-entrance conductors shall be installed in accordance with the applicable requirements of this code covering the type of wiring method used and limited to the following methods: (1) open wiring on insulators; (2) rigid metal conduit; (3) intermediate metal conduit; (4) electrical metallic tubing; (5) wireways; (6) busways; (7) auxiliary gutters; (8) rigid nonmetallic conduit; (9) cablebus; (10) Type MC cable by special permission in industrial complexes; (11) mineral-insulated, metal-sheathed cable; or (12) liquid-tight flexible nonmetallic conduit.

Approved cable tray systems shall be permitted to support cables approved for use as service-entrance conductors. (Ord. 17049 §19; August 19, 1996: prior Ord. 16384 §16; June 14, 1993).

23.10.337 Section 230.46 Amended; Splicing Service Entrance Conductors.

Section 230.46 of the National Electrical Code is hereby amended to read as follows:

230.46 Splicing Service Entrance Conductors. Service entrance conductors may be spliced under the following conditions:

1. Clamped or bolted connections in metering equipment enclosures shall be permitted.

2. Where service-entrance conductors are tapped to supply two to six disconnecting means grouped at a common location.

3. At a properly enclosed junction point where an underground wiring method is changed to another type of wiring method.

4. A connection shall be permitted where service conductors are extended from a service drop to an outside meter location and returned to connect to the service-entrance conductors of an existing installation.

5. Where the service-entrance conductors consist of busway, connections shall be permitted as required to assemble the various sections and fittings.

6. For existing service-entrance conductors, it shall be permissible to install listed underground splice kits for:

a. Repair of existing conductors.

b. Extension of conductors by special permission of the authority having jurisdiction. (Ord. 17521 § 15; July 6, 1999).

23.10.340 Section 230.83 Added; Transfer Equipment.

Section 230.83 is added to the National Electrical Code to read as follows:

230.83. Transfer Equipment. Transfer equipment shall operate such that all ungrounded conductors of one source of supply are disconnected before any ungrounded conductors of the second source are connected.

EXCEPTION (1): Where manual equipment identified for the purpose, or suitable automatic equipment is utilized, two or more sources shall be permitted to be connected in parallel through transfer equipment.

EXCEPTION (2): Where parallel operation is used and suitable automatic or manual control equipment is provided.

Transfer equipment for permanently installed generators shall include a means for switching the neutral conductor, and the neutral conductor of both the normal and standby power sources shall be bonded and grounded independently. (Ord. 17521 § 16; July 6, 1999: prior Ord. 16384 §17; June 14, 1993: Ord. 15580 §29; June 4, 1990: Ord. 14228 §34; September 30, 1985).

23.10.345 Section 240.20 Amended; Ungrounded Conductors.

Section 240.20 of the National Electrical Code is hereby amended to read as follows:

240.20. Ungrounded Conductors.

(a) Overcurrent Device Required. A fuse or an overcurrent trip unit of a circuit breaker shall be connected in series with each ungrounded conductor. A combination of a current transformer and overcurrent relay shall be considered equivalent to an overcurrent trip unit.

(FPN): For motor circuits, see Parts III, IV, V, and X of Article 430.

(b) Circuit Breaker as Overcurrent Device. Circuit breakers shall open all ungrounded conductors of the circuit simultaneously. Listed multi-pole circuit breakers shall be utilized in circuits with more than one ungrounded conductor.

(c) Closed-Loop Power Distribution Systems. Listed devices providing equivalent overcurrent protection in closed-loop power distribution systems shall be permitted as a substitute for fuses or circuit breakers. (Ord. 18012 §9; June 17, 2002: prior Ord. 17521 § 17; July 6, 1999: Ord. 17049 §20; August 19, 1996: Ord. 16384 §18; June 14, 1993).

23.10.347 Section 240.24 Amended; Location of Overcurrent Devices in or on Premises.

Section 240.24 of the National Electrical Code is hereby amended to read as follows:

240.24. Location in or on Premises. (a) Readily Accessible. Overcurrent devices shall be readily accessible unless one of the following applies:

1: For busways as provided in Section 364.12.

2: For supplementary overcurrent protection as described in Section 240.10.

3: For overcurrent devices as described in Sections 225.40 and 230.92.

4: Overcurrent devices installed adjacent to motors, appliances, or other equipment that they supply shall be permitted to be accessible by portable means.

(b) Occupant to Have Ready Access. Each occupant shall have ready access to all overcurrent devices protecting the conductors supplying that occupancy.

EXCEPTION (1): In a multiple-occupancy building where electric service and electrical maintenance are provided by the building management and where these are under continuous building management supervision, the service overcurrent devices and feeder overcurrent devices supplying more than one occupancy shall be permitted to be accessible to authorized management personnel only.

EXCEPTION (2): For guest rooms of hotels and motels that are intended for transient occupancy and that are under continuous building management supervision, the overcurrent devices shall be permitted to be accessible to authorized management personnel only.

(c) Not Exposed to Physical Damage. Overcurrent devices shall be located where they will not be exposed to physical damage.

(d) Not in Vicinity of Easily Ignitible Material. Overcurrent devices shall not be located in the vicinity of easily ignitible material such as in clothes closets. (Ord. 17521 § 18; July 6, 1999: prior Ord. 17049 §22; August 19, 1996: Ord. 16384 §19; June 14, 1993).

23.10.350 Section 250.24 Amended; Grounding Service-Supplied Alternating-Current Systems; System Grounding Connections.

Section 250.24 of the National Electrical Code is hereby amended to read as follows:

250.24 System Grounding Connections. A premises wiring system that is supplied by an ac service that is grounded shall have at each service a grounding electrode conductor connected to a grounding electrode that complies with Part III of Article 250. The grounding electrode conductor shall be connected to the grounded service conductor in the service disconnecting means, and be run in one unspliced piece to the street side of the premises' water meter or approved electrode.

EXCEPTION (1): By special permission.

EXCEPTION (2): As permitted in Section 23.10.300 (Note).

EXCEPTION (3): As permitted in Section 23.10.360 (Exception).

Where the transformer supplying the service is located outside the building, at least one additional grounding connection shall be made from the grounded service conductor to a grounding electrode, either at the transformer or elsewhere outside the building. A grounding connection shall not be made to any grounded circuit conductor on the load side of the service disconnecting means.

(FPN): See definition of "Service Drop" and "Service Lateral" in Article 100; see also Section 230.21.

A grounding electrode conductor shall be connected to the grounded conductor of a separately derived system in accordance with the provisions of Section 250.30(a)(2).

A grounding conductor connection shall be made at each separate building where required by Section 250.32.

For ranges, counter-mounted cooking units, wall-mounted ovens, clothes dryers, and meter enclosures as permitted by Section 250.61.

For services that are dual fed (double ended) in a common enclosure or grouped together in separate enclosures and employing a secondary tie, a single grounding electrode connection to the tie point of the grounded circuit conductors from each power source shall be permitted.

Where the main bonding jumper specified in Section 250.28 is a wire or busbar, and is installed from the neutral bar or bus to the equipment grounding terminal bar or bus in the service equipment, the grounding electrode conductor shall be permitted to be connected to the equipment grounding terminal bar or bus to which the main bonding jumper is connected.

The grounded conductor on a high-impedance grounded neutral system shall be grounded in accordance with Section 250.36. (Ord. 18012 §10; June 17, 2002: prior Ord. 17521 § 19; July 6, 1999: Ord. 17049 §23; August 19, 1996: Ord. 16384 §20; June 14, 1993: Ord. 15580 §30; June 4, 1990: Ord. 14228 §35; September 30, 1985).

23.10.351 Section 250.50 Amended; Grounding Electrode System.

Section 250.50 of the National Electrical Code is hereby amended to read as follows:

250.50. Grounding Electrode System. Where available on the premises and in direct contact with the earth for ten feet or more, a metal underground water pipe shall always be used as the grounding electrode. The metal sheath (skin) and metal frames of buildings shall be bonded to the grounding electrode system. The connection of the grounding conductor to the grounding electrode shall be on the supply side of the water meter. Continuity of the grounding path or the bonding connection to the piping shall not rely on water meters, filtering devices, or similar equipment, nor shall the path be relied on if the water pipe incorporates insulated sleeve joints or di-electric couplings. Where an acceptable metal underground water pipe is not available at the structure, an approved made electrode shall be installed and bonded to.

It shall be permitted to splice the grounding electrode conductor by means of the exothermic welding process only.

EXCEPTION: In buildings where connection to the supply side of the water meter results in objectionable impedance, the authority having jurisdiction may permit an alternate grounding electrode system. (Ord. 17521 § 20; July 6, 1999).

23.10.353 Section 250.52 Amended; Made and Other Electrodes.

Section 250.52 of the National Electrical Code is hereby amended to read as follows:

250.52 . Made and Other Electrodes. Where none of the electrodes specified in Section 250.50 is available, one or more of the electrodes specified in (a) through (c) below shall be used. Where practicable, made electrodes shall be embedded below permanent moisture level. The electrodes shall not be installed inside the structure. Made electrodes shall be free from nonconductive coatings, such as paint or enamel. Where more than one electrode system is used (including those used for lightning rods), each electrode of one system shall not be less than six feet from any other electrode of another system, or the electrodes shall be effectively bonded together. Note: See Section 250.106. Two or more electrodes that are effectively bonded together are to be treated as a single electrode system.

(a) Other local metal underground systems or structures, such as piping systems and underground tanks;

(b) Nonferrous or stainless steel rod electrodes shall be listed and not be less than eight feet in length and one-half inch in diameter, and shall be installed in the following manner:

The electrode shall be installed so that at least eight feet of its length is in contact with the soil. It shall be driven to a depth of not less than eight feet except that where rock bottom is encountered, the electrode shall be driven at an oblique angle not to exceed forty-five degrees from the vertical or shall be buried in a trench that is at least two and one-half feet deep. The upper end of the electrode shall be flush

with or below ground level unless the above-ground end and the grounding electrode conductor attachment are protected against physical damage.

(c) Plate electrodes shall expose not less than two square feet of surface to exterior soil. Electrodes of iron or steel plate shall be at least one-fourth of an inch in thickness. Electrodes of nonferrous metal shall be at least 0.06 inches in thickness. Aluminum electrodes shall not be used. Plate electrodes shall be installed not less than two and one-half feet below the surface of the earth. (Ord. 17521 § 21; July 6, 1999).

23.10.355 Section 250.92 Amended; Service Equipment.

Section 250.92 of the National Electrical Code is hereby amended to read as follows:

250.92. Service Equipment. (a) Bonding of Services. The noncurrent-carrying metal parts of equipment indicated in (1), (2), and (3) below shall be effectively bonded together.

(1) The service raceways, cable trays, cablebus framework, or service cable armor or sheath except as permitted in 250.84.

(2) All service enclosures containing service conductors, including meter fittings, boxes, or the like, interposed in the service raceway or armor.

(3) Any metallic raceway or armor enclosing a grounding electrode conductor as specified in Section 250.64(b). Bonding shall apply at each end and to all intervening raceways, boxes, and enclosures between the service equipment and the grounding electrode.

(b) Bonding to Other Systems. An accessible means external to enclosures for connecting intersystem bonding and grounding conductors shall be provided at the service by at least one of the following means:

(1) Exposed metallic service raceways external to the building.

(2) Exposed grounding electrode conductor external to the building.

(3) Approved means for the external connection of a copper or other corrosion-resistant bonding or grounding conductor to the service raceway or equipment external to the building.

For the purposes of providing an accessible means for intersystem bonding, the disconnecting means at a separate building or structure as permitted in Section 250.32 and the disconnecting means at a mobile home, as permitted in Section 550.23(a), shall be considered the service equipment.

FPN NO. 1: A No. 6 copper conductor with one end bonded to the service raceway or equipment and with six inches (152mm) or more of the other end made accessible on the outside wall is an example of the approved means covered in (b)(3).

FPN NO. 2: See Sections 800.40, 810.21 and 820.40 for bonding and grounding requirements for communications circuits, radio and television equipment, and CATV circuits. (Ord. 17521 § 23; July 6, 1999: prior Ord. 17049 §24; August 19, 1996: Ord. 16384 §21; June 14, 1993).

23.10.360 Section 250.81 Amended; Grounding Electrode System.

(Repealed by Ord. 17521 § 24; July 6, 1999: prior Ord. 17049 §25; August 19, 1996: Ord. 16384 §22; June 14, 1993: Ord. 15580 §31; June 4, 1990: Ord. 14228 §36; September 30, 1985).

23.10.370 Section 250.83 Amended; Made and Other Electrodes.

(Repealed by Ord. 17521 § 25; July 6, 1999: prior Ord. 16384 §23; June 14, 1993: Ord. 15580 §32; June 4, 1990: Ord. 14228 §37; September 30, 1985).

23.10.380 Section 300.13(b) Amended; Mechanical and Electrical Continuity of Conductors; Device Removal.

Section 300.13(b) of the National Electrical Code is hereby amended to read as follows:

300.13(b) Device Removal. The continuity of phase, grounded, or grounding conductors shall not be dependent upon device connections, such as lamp holders, receptacles, etc., where the removal of such devices would interrupt branch circuit continuity. (Ord. 17049 §26; August 19, 1996: prior Ord. 16384 §24; June 14, 1993: Ord. 15580 §33; June 4, 1990: Ord. 14228 §38; September 30, 1985).

23.10.381 Section 300.14 Amended; Length of Free Conductors at Outlets, Junctions, and Switch Points.

Section 300.14 of the National Electrical Code is hereby amended to read as follows:

300.14. Length of Free Conductors at Outlets, Junctions, and Switch Points.

At least six inches (152 mm) of free conductor, measured from the point in the box where it emerges from the face of the box, shall be left at each outlet, junction, and switch point for splices or the connection of fixtures or devices. (Ord. 17521 § 26; July 6, 1999).

23.10.385 Section 314.16(B)4 Amended; Box Fill.

Section 314.16(B)(4) of the National Electrical Code is hereby amended to read as follows:

314.16(B)4. Device or Equipment Fill. For each yoke or strap containing one or more devices or equipment, a single volume allowance in accordance with Table 314.16(B) shall be made for each yoke or strap based on the largest conductor connected to a device(s) or equipment supported by that yoke or strap. (Ord. 18012 §11; June 17, 2002: previous §23.10.385 Ground Fault Protection for Personnel repealed by Ord. 17521 § 27; July 6, 1999: Ord. 17049 §27; August 19, 1996: Ord. 16384 §25; June 14, 1993).

23.10.390 Section 334.12 Amended; Nonmetallic Sheathed Cable, Uses Not Permitted.

Section 334.12 of the National Electrical Code is hereby amended to read as follows:

334.12. Uses Not Permitted. Nonmetallic sheathed cable shall not be used in any single family, duplex, multifamily dwelling, or other structure exceeding three floors above grade. See Section 23.10.290 for approved wiring methods.

For the purpose of this article, the first floor of a building shall be that floor that has 50 percent or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage, or similar use shall be permitted. (Ord. 18012 §12; June 17, 2002: prior Ord. 17521 § 28; July 6, 1999).

23.10.392 Section 370.16(b)4 Amended; Box Fill.

(Repealed by Ord. 18012 §13; June 17, 2002: Ord. 17049 §29; August 19, 1996).

23.10.393 Section 406.8 Amended; Receptacles in Damp or Wet Locations

Section 406.8 of the National Electrical Code is hereby amended to read as follows:

406.8 Receptacles in Damp or Wet Locations.

(a) Damp Locations. A receptacle installed outdoors in a location protected from the weather or in other damp locations shall have an enclosure for the receptacle that is weatherproof when the receptacle is covered (attachment plug cap not inserted and receptacle covers closed).

An installation suitable for wet locations shall also be considered suitable for damp locations.

A receptacle shall be considered to be in a location protected from the weather where located under roofed open porches, canopies, marquees, and the like, and will not be subjected to a beating rain or water runoff.

(b) Wet Locations.

1. A receptacle installed in a wet location where the product intended to be plugged into it is not attended while in use (e.g., sprinkler system controllers, landscape lighting, holiday lights, etc.) shall have an enclosure that is weatherproof with the attachment plug cap inserted or removed.

2. A receptacle installed in a wet location where the product intended to be plugged into it will be attended while in use (e.g., portable tools, etc.) shall have an enclosure that is weatherproof when the attachment plug cap is removed.

(c) Bathtub and Shower Space. A receptacle shall not be installed within a bathtub or shower space.

(d) Protection for Floor Receptacles. Standpipes of floor receptacles shall allow floor-cleaning equipment to be operated without damage to receptacles.

(e) Flush Mounting with Faceplate. The enclosure for a receptacle installed in an outlet box flush-mounted on a wall surface shall be made weatherproof by means of a weatherproof faceplate assembly that provides a watertight connection between the plate and the wall surface.

(f) Installation. A receptacle outlet installed outdoors shall be located so that water accumulation is not likely to touch the outlet cover or plate. (Ord. 18012 §14; June 17, 2002).

23.10.395 Section 408.21 Amended; Grounded Conductor Terminations.

Section 408.21 of the National Electrical Code is hereby amended to read as follows:

408.21 Grounded Conductor Terminations. Each grounded conductor shall terminate within the panelboard in an individual terminal that is not also used for another conductor.

Exception 1: Grounding conductors of like material and size, and from the same branch circuit shall be permitted to terminate in the same terminal as the grounded conductor, if the terminal is identified for connection of more than one conductor.

Exception 2: Grounded conductors of circuits with parallel conductors shall be permitted to terminate in a single terminal if the terminal is identified for connection of more than one conductor. (Ord. 18012 §15; June 17, 2002).

23.10.400 Section 410.2 Amended; Lighting Fixtures; Application of Other Articles.

Section 410.2 of the National Electrical Code is hereby amended to read as follows:

410.2. Application of Other Articles. Equipment for use in hazardous (classified) locations shall conform to Articles 500 through 517. Lighting systems operating at 30 volts or less shall also conform to Article 411. Arc lamps used in theaters shall comply with Section 520.61, and arc lamps used in projection

machines shall comply with Section 540.20. Arc lamps used on constant-current systems shall comply with the general requirements of Article 490. (Ord. 17521 § 29; July 6, 1999: prior Ord. 17049 §30; August 19, 1996).

23.10.402 Section 410.4(d) Amended; Lighting Fixtures Above Bathtubs and Shower Areas.

Section 410.4(d) of the National Electrical Code is hereby amended to read as follows:

410.4(d). Above Bathtubs and Shower Areas. No parts of cord-connected fixtures, hanging fixtures, lighting track, pendants, or ceiling-suspended (paddle) fans shall be located within a zone measured three feet (914 mm) horizontally and eight feet (2.44 m) vertically from the top of the bathtub rim or shower stall threshold. This zone is all encompassing and includes the zone directly over the tub or shower stall.

All lighting fixtures, fans, or other electrical equipment installed directly within the zone over the tub, or within a shower, shower space, or shower enclosure shall be provided with GFCI protection. (Ord. 17521 § 30; July 6, 1999: prior Ord. 17049 §31; August 19, 1996).

23.10.405 Section 410.102 Amended; Lighting Track Load.

(Repealed by Ord. 17521§ 31; July 6, 1999: prior Ord. 17049 §32; August 19, 1996).

23.10.410 Section 422.16(b) Amended; Specific Appliances.

Section 422.16(b) of the National Electrical Code is hereby amended to read as follows:

422.16(b). Specific Appliances. The exposed wiring to disposal and dishwasher units shall be protected with flexible metal tubing, flexible metal conduit, liquid-tight flexible metal conduit, or liquid-tight flexible nonmetallic conduit. Third party certified disposals and dishwasher units, factory equipped with a flexible cord, may be approved by special permission.

A readily accessible disconnect shall be installed adjacent to the equipment and all such equipment shall be grounded.

EXCEPTION: Listed kitchen waste disposers, dishwashers, and trash compactors protected by a system of double insulation, or its equivalent, shall not be required to be grounded. Where such a system is employed, the equipment shall be distinctively marked. (Ord. 17521 § 32; July 6, 1999: prior Ord. 16384 §27; June 14, 1993: Ord. 15580 §36; June 4, 1990: Ord. 14228 §41; September 30, 1985).

23.10.415 Section 424.3(c) Added; GFCI Protection for Conductive Heated Floors of Bathrooms.

(Repealed by Ord. 17521 § 33; July 6, 1999: prior Ord. 17049 §33; August 19, 1996).

23.10.417 Article 430.102 Amended; Location of Motor Disconnects.

Article 430.102 of the National Electrical Code is hereby amended to read as follows:

430.102. Location

(a) Controller. An individual disconnecting means shall be provided for each controller and shall disconnect the controller. The disconnecting means shall be located in sight from the controller location.

Exception No. 1: For motor circuits over 600 volts, nominal, a controller disconnecting means capable of being locked in the open position shall be permitted to be out of sight of the controller, provided the controller is marked with a warning label giving the location of the disconnecting means.

Exception No. 2: A single disconnecting means shall be permitted for a group of coordinated controllers that drive several parts of a single machine or piece of apparatus. The disconnecting means and the controllers shall be located in sight from the machine or apparatus.

(b) Motor. A disconnecting means shall be located in sight from the motor location and the driven machinery location.

Exception: A disconnecting means, in addition to the controller disconnecting means as required in accordance with Section 430.102(a), shall not be required for the motor where the disconnecting means for the controller is individually capable of being locked in the open position.

FPN: For information on lockout/tagout procedures, see Standard for Electrical Safety Requirements for Employee Workplaces, NFPA 70E.1995. (Ord. 18012 §16; June 17, 2002).

23.10.420 Article 460 Amended; Rating of Capacitors.

Article 460 of the National Electrical Code is hereby amended by adding a new section numbered 460.7 to read as follows:

460.7. (a) Total Kilovar Rating of Capacitors. The total kilovar rating of capacitors that are connected on the load side of a motor controller shall not exceed the value required to raise the no-load power factor of the motor branch circuit to unity.

EXCEPTION: When motor ratings do not exceed 600 volts, nominal, and fifty horsepower, capacitors not exceeding fifty percent of the Kva rating of the motor input shall be permitted to be connected on the load side of the motor controller.

(b) Motor not subject to unusual switching service. Capacitors so connected shall be permitted only in applications where the motor is not subject to unusual switching service, such as plugging, rapid reversals, reclosings, or other similar operations which could generate over-voltages and over-torques. (Ord. 17049 §34; August 19, 1996; prior Ord. 16384 §28; June 14, 1993: Ord. 15580 §37; June 4, 1990: Ord. 14228 §42; September 30, 1985).

23.10.425 Section 500.7(K) Deleted; Combustible Gas Detection Systems.

Section 500.7(K) of the 2002 National Electrical Code is hereby deleted in its entirety. (Ord. 18012 §17; June 17, 2002).

23.10.430 Section 501.17 Amended; Lightning and Surge Protection for Class I, Divisions 1 and 2 Locations (or Zone 0, 1, or 2).

Section 501.17 of the National Electrical Code is hereby amended to read as follows:

501.17. Surge Protection, Class I, Divisions 1 and 2. Surge arresters, including their installation and connection, shall comply with Article 280. In addition, surge arresters if installed in Class I, Division 1 locations shall be in suitable enclosures. Surge-protective capacitors shall be of a type designed for specific duty.

Approved surge arresters shall be installed on all overhead service entrance conductors which supply power to Class I, Division 1, Division 2, or Zone 0, 1, or 2 areas. (Ord. 17521 § 34; July 6, 1999: prior Ord. 17049 §35; August 19, 1996: Ord. 16384 §29; June 14, 1993: Ord. 15580 §38; June 4, 1990: Ord. 14228 §43; September 30, 1985).

23.10.440 Section 502.17 Amended; Lightning and Surge Protection for Class II, Divisions 1 and 2 Locations.

Section 502.17 of the National Electrical Code is hereby amended to read as follows:

502.17. Surge Protection, Class II, Divisions 1 and 2. Surge arresters, including their installation and connection shall comply with Article 280. In addition, surge arresters if installed in a Class II, Division 1 location shall be in suitable enclosures. Surge protective capacitors shall be of a type designed for specific duty.

Approved surge arresters shall be installed on all overhead service entrance conductors which supply power to Class II, Division 1 or Division 2 areas. (Ord. 17049 §36; August 19, 1996: prior Ord. 16384 §30; June 14, 1993: Ord. 15580 §39; June 4, 1990: Ord. 14228 §44; September 30, 1985).

23.10.450 Section 514.8 Amended.

(Repealed by Ord. 17049 §37; August 19, 1996: Ord. 16384 §31; June 14, 1993: Ord. 15580 §40; June 4, 1990: Ord. 14228 §45; September 30, 1985).

23.10.455 Section 515.5 Amended.

(Repealed by Ord. 17049 §38; August 19, 1996: Ord. 16384 §32; June 14, 1993: Ord. 15580 §41; June 4, 1990).

23.10.456 Section 600.11 Amended.

(Repealed by Ord. 17049 §39; August 19, 1996: Ord. 16384 §33; June 14, 1993).

23.10.457 Section 600.1 Amended; Scope of NEC Article 600.

Section 600.1 of the National Electrical Code is hereby amended by adding the following note:

NOTE: Rigid nonmetallic conduit and liquid-tight flexible nonmetallic conduit will not contribute to a corona induced failure of GTO cable, but care must be exercised in routing such conduits near or through grounded surfaces which may contribute to such failure. The dielectric withstand of these raceways has not been investigated by the City of Lincoln. (Ord. 16384 §34; June 14, 1993).

23.10.458 Section 600.34(d) Amended.

(Repealed by Ord. 17049 §41; August 19, 1996: Ord. 16384 §35; June 14, 1993).

23.10.459 Section 600.10(c)2 Amended; GFCI Protection for Portable or Mobile Signs.

Section 600.10(c)2 of the National Electrical Code is hereby amended to read as follows:

600.10(c)2. Outdoor Portable or Mobile Signs. The wiring of an outdoor sign that is portable or mobile and is readily accessible shall be provided with ground-fault circuit-interrupter protection for personnel. The ground-fault circuit-interrupter may be located in the cord cap, within twelve inches of the source end of the cord, in the sign behind an access cover, or on the sign in an approved weather-proof box. Conductive supports of a sign specified in this section shall be considered part of the sign. (Ord. 17521 § 35; July 6, 1999: prior Ord. 17049 §42; August 19, 1996).

23.10.460 Section 680.22(A)(1) Amended; Pool and Fountain Receptacle Locations, and Circuit GFCI Protection Requirements.

Section 680.22(A)(1) of the National Electrical Code is hereby amended to read as follows:

680.22(A)(1): A receptacle that provides power for a water-pump motor for a permanently installed pool or fountain as permitted in Section 680.7, shall be permitted not less than five feet nor more than ten feet from the inside walls of the pool or fountain and shall be single and of the locking and grounding types and all receptacles shall be protected by a ground-fault circuit-interrupter. All circuits supplying power for pool equipment shall be protected by ground-fault circuit-interrupters.

Other receptacles on the property shall be located at least 10 feet from the inside walls of a pool or fountain. (Ord. 18012 §18; June 27, 2002: prior Ord. 17521 § 36; July 6, 1999: Ord. 17049 §43; August 19, 1996: Ord. 16384 §36; June 14, 1993: Ord. 15580 §42; June 4, 1990: Ord. 14228 §46; September 30, 1985).

23.10.470 Section 680.8 Amended; Overhead Conductor Clearances.

Section 680.8 of the National Electrical Code is hereby amended to read as follows:

680.8. Overhead Conductor Clearances. The following parts of swimming and wading pools shall not be placed under existing service-drop conductors or any other open overhead wiring; nor shall such wiring be installed above the following:

(a) Swimming and wading pools, permanently installed spas, hot tubs, hydromassage tubs, and the area extending ten feet horizontally from the inside of the walls of the pool, spa, or tub;

(b) Diving structure; or

(c) Observation stands, towers, or platforms.

Electrical conduit shall be installed for utility company service wires when the service conductors will be under the swimming pool, deck, apron, or within five feet of the swimming pool walls. (Ord. 17521 § 37; July 6, 1999: prior Ord. 17049 §44; August 19, 1996: Ord. 16384 §37; June 14, 1993: Ord. 15580 §43; June 4, 1990: Ord. 14228 §47; September 30, 1985).

23.10.475 Section 680.23(A)(4) Amended; Swimming Pool Underwater Luminaries; Voltage Limitations.

Section 680.20(a)(2) of the National Electrical Code is hereby amended to read as follows:

680.23(A)(4). Underwater Luminaries. No luminaire shall be installed for operation over 150 volts between conductors except by special permission. Forming shells of nonmetallic construction for wet-niche fixtures shall be allowed by special permission only. (Ord. 18012 §19; June 17, 2002: prior Ord. 17049 §45; August 19, 1996: Ord. 16384 §38; June 14, 1993).

23.10.480 Section 680.26 Amended; Bonding Requirements.

Section 680.26 of the National Electrical Code is hereby amended to read as follows:

680.26. Bonding. The No. 8 or larger solid bonding conductor shall be extended to the equipment grounding terminal of the sub-panel, or neutral bar of the service panel which supplies power to the pool lights and equipment. (Ord. 18012 §20; June 17, 2002: prior Ord. 17521 § 38; July 6, 1999: Ord. 17049 §46; August 19, 1996: Ord. 16384 §39; June 14, 1993: Ord. 15580 §44; June 4, 1990: Ord. 14228 §48; September 30, 1985).

23.10.490 Section 680.43(A)(3) Amended; GFCI Requirements for Spas and Hot Tubs.

Section 680.43(A)(3) of the National Electrical Code is hereby amended to read as follows:

680.43(A)(3). Receptacles or permanent wiring supplying power to a spa or hot tub shall be protected by ground-fault circuit interrupters. (Ord. 18012 §21; June 17, 2002: prior Ord. 17049 §47; August 19, 1996: Ord. 16384 §40; June 14, 1993: Ord. 15580 §45; June 4, 1990: Ord. 14228 §49; September 30, 1985).

23.10.495 Section 680.72 Amended; Electrical Equipment Located in the Vicinity of a Hydromassage Tub.

Section 680.72 of the National Electrical Code is hereby amended to read as follows:

680.72. Luminaries, switches, receptacles, and other electric equipment located in the same room, and not directly associated with a hydromassage bathtub shall be installed in accordance with the requirements of Chapters 1 through 4 in this code covering the installation of that equipment in bathrooms. Luminaries, switches, receptacles, and other electric equipment located within five feet measured horizontally from the inside walls of the hydromassage bathtub shall be protected by ground fault circuit interrupter. (Ord. 18012 §22; June 17, 2002: prior Ord. 17049 §48; August 19, 1996: Ord. 16384 §41; June 14, 1993: Ord. 15580 §46; June 4, 1990).

23.10.496 Section 695.8(d) Amended; Power Supply for Fire System Pressure Maintenance Pumps.

(Repealed by Ord. 17521 § 39; July 6, 1999: prior Ord. 17049 §49; August 19, 1996).

23.10.500 Section 700.12(f) Added; Emergency Service Source of Power.

Section 700.12 of the National Electrical Code is hereby amended by the addition of part (f) as follows:

700.12(f). Connection Ahead of Service Disconnecting Means. Where acceptable to the authority having jurisdiction, connections ahead of the main service disconnecting means shall be permitted. The emergency service shall be separated from the normal main service disconnecting means and/or distribution equipment to prevent simultaneous interruption of supply through an occurrence within the building or group of buildings served.

The service entrance conductors within the building to the emergency disconnect and overcurrent protection shall be in rigid metallic conduit and shall be as close to the service entrance as possible, but not exceeding ten feet in length within the building. (Ord. 17521 § 40; July 6, 1999: prior Ord. 17049 §50; August 19, 1996: Ord. 16384 §42; June 14, 1993: Ord. 15580 §47; June 4, 1990: Ord. 14228 §50; September 30, 1985).

23.10.510 Code Coordination.

The electrical contractor shall become familiar with the requirements of other codes (such as the uniform building code, uniform mechanical code, uniform fire code, and their adoptive ordinances) enforced in this jurisdiction, the provisions of which apply to electrical installations.

ADVISORY NOTE: See the Uniform Building Code, Section 310.9.1.4 as amended by Title 20, the Lincoln Building Code, Section 20.12.260 regarding requirements for smoke detectors in dwelling units. Contact the Lincoln Bureau of Fire Prevention for the requirements of the Lincoln Fire Code, Title 19, and

Lincoln Fire Suppression Ordinance, Title 24, regarding exit lighting, fire alarm and emergency systems, and hazardous (classified) area classification. Contact the Mechanical Inspection Division regarding smoke detector requirements for air handling units of more than 2000 cfm. (Ord. 17521 § 41; July 6, 1999: prior Ord. 17049 §51; August 19, 1996: Ord. 15580 §48; June 4, 1990: Ord. 14228 §51; September 30, 1985).

23.10.520 Permit Fees.

Before a permit to install, alter, or add to electrical equipment shall be issued, a fee for such permit shall be paid to the Building Official as set forth below. Said permit shall become valid for a period of sixty days from the date of issuance, and remain valid as long as work on the project is not abandoned for a period in excess of sixty days.

Where work for which a permit is required by this code is started prior to obtaining a permit, the fees hereinafter specified shall be doubled; however, the payment of such double fees shall not relieve any person, firm, or corporation from fully complying with the requirements of this code.

There shall be no refunds or credits given on any permit which has expired. Permit holders returning an unused or partially completed permit prior to the expiration date of the permit shall be limited to a maximum refund amounting to two-thirds of the original fee for the items not yet inspected, for total refund amounts of $60.00 and less. For permit fee refund totals in excess of $60.00, a $20.00 processing fee will be levied against the refund amount, but the two-thirds maximum shall not apply.

COMBINED FEE AND PRICE SCHEDULE

PERMIT FEES:

Minimum Permit Fee Charge $20.00

There is no minimum permit fee for supplemental permits for shortages occurring on the original permit, and for which the work has been inspected.

Service Equipment:

30 ampere thru 400 ampere	33.00
401 ampere thru 1600 ampere	50.00
1601 ampere thru 3000 ampere	60.00
3001 ampere and over	75.00
Service Repair	20.00
Change overhead to underground, with no change of panel	18.00
Each additional meter	4.00
Each branch panel, sub-panel, or transfer switch	12.00

High Voltage (>600v) Equipment:

per termination	5.00

Outlets for lighting, receptacles, switches, and

junction boxes (each opening)	.50

Lighting fixtures, each 50

Baseboard heaters, each unit 4.00

Ceiling Fans 4.00

Motors:
- Up to and including 3 H.P. 7.00
- Over 3 H.P. 10.00

Generators:
- Up to and including 2.2 KW 7.00
- Over 2.2 KW 10.00

Transformers:
- To 75 KVA 10.00
- 76 - 112 1/2 KVA 15.00
- Over 112 1/2 KVA 25.00

Exhaust fans and hoods:
- Residential 3.00
- Commercial 18.00

Pole lights, arc lights, vapor lights, yard lights 5.00

Appliances or receptacles for same: such as disposal, dishwasher, dryer, range, furnace, air conditioner, heat pumps, roof top units (RTUs), unit heater, duct heater, water heater or receptacles for approved cord connected appliances of a like nature 5.00

Signs:
- Including time clock, disconnect, ballasts, etc. 25.00

Pool Grounding 54.00

Hot Tub or Spa 30.00

Other NEC Article 680 items, such as fountains 20.00

Hydro Massage Bathtub 15.00

Temporary Wiring, such as construction and exhibition
- 100 amperes and less 18.00
- More than 100 amperes . . . . . Same fee schedule as services

Reinspection fee (wrong address, work not complete, inaccessibility of equipment, and equipment that does not pass inspection) 55.00

For inspection of apparatus for which
no other fee is herein provided 5.00

Fire Alarm Control Panel 30.00

Fire Alarm Devices and Signals
1 - 15 . . . . . 25.00
16 - 50, an additional 20.00
51 - 100, an additional 15.00
For each additional 100, or fraction thereof,
an additional 10.00

EXAMINATION FEE: All classes - per examination 50.00

REGISTRATION FEES:

City Master Electrician Registration Fee, annually . . . . . $ 60.00

City Journeyman Electrician Registration Fee, annually 20.00

City Apprentice Electrician Registration, annually 12.00

Maintenance Electrician Registration Fee, annually 100.00

State Master/Contractor Registration Fee, annually 60.00
or biennially 120.00

State Fire Alarm Installer Registration Fee, annually 60.00
or biennially 120.00

State Journeyman License Registration Fee, annually 20.00
or biennially 40.00

COST OF APPEAL PROCEDURES - See Section 23.10.120

(Ord. 18012 §23; June 17, 2002: prior Ord. 17521 § 42; July 6, 1999: Ord. 17049 §52; August 19, 1996: Ord. 16384 §43; June 14, 1993: Ord. 15580 §49; June 4, 1990: Ord. 14228 §52; September 30, 1985).